

NOT FOR PUBLICATION

**UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY**

_____	:	
GLOBESPANVIRATA, INC.,	:	
	:	
Plaintiff,	:	Civ. No. 03-2854 (GEB)
	:	
v.	:	OPINION
	:	
TEXAS INSTRUMENT, INC., THE LELAND	:	
STANFORD JUNIOR UNIVERSITY and	:	
its BOARD OF TRUSTEES, and STANFORD	:	
UNIVERSITY OTL, LLC,	:	
	:	
Defendants.	:	
_____	:	
TEXAS INSTRUMENT, INC., <i>et al.</i> ,	:	
	:	
Counterclaimant,	:	
	:	
v.	:	
	:	
GLOBESPANVIRATA, INC. and	:	
CONEXANT SYSTEMS, INC.	:	
	:	
Counterclaim Defendants.	:	
_____	:	

BROWN, U.S.D.J:

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I. INTRODUCTION

This matter comes before the Court upon the various motions for partial summary judgment filed by both Plaintiff Globespanvirata, Inc. (“Globespan”) and Defendants Texas Instruments, Inc., The Leland Stanford Junior University and its Board of Trustees, and Stanford University OTL, LLC’s (“Defendants”). Globespan seeks partial summary judgment of noninfringement as to the three patents-in-suit, namely U.S. Patent No. 5,400,322 (the “‘322 Patent”), U.S. Patent No. 5,479,447 (the “‘447 Patent”), and U.S. Patent No. 5,596,604 (the “‘604 Patent”). Globespan also moves for summary judgment on invalidity as to claim 1 of the ‘447 Patent, and as to claims 19–21 of the ‘604 Patent. Defendants seek summary judgment of infringement as to claims 1–20 of the ‘322 Patent, claims 1 and 2 of the ‘447 Patent, and claims 1–22 of the ‘604 Patent. The matter was decided without oral argument pursuant to Federal Rule of Civil Procedure 78.¹ For the reasons discussed below, the parties’ motions for summary judgment are granted-in-part and denied-in-part.

II. BACKGROUND

Globespan initiated this action against Defendants on June 12, 2003 by filing a complaint alleging, *inter alia*, violations of antitrust laws. In their answer, Defendants asserted counterclaims alleging that Globespan’s products infringe the patents-in-suit. The Court bifurcated the antitrust

¹ On September 12, 2005, the Court heard oral argument on other motions that were filed by the parties, including Globespan’s Motion to Separate Trial, Defendants’ Motion for Judgment on the Pleadings on Counts III, V, VI and VII in the First Amended Complaint, Defendants’ Motion to Dismiss Counts XII to XV of the First Amended Complaint for Lack of Subject Matter Jurisdiction, as well as one aspect of Globespan’s Partial Motion for Summary Judgment concerning the license agreement. The Court issued its oral ruling on these motions on the same day. *See* Docket Entries [210 -13]. The Court, however, did not hear oral argument on the motions for summary judgment with regard to infringement and invalidity.

and patent infringement phases of litigation. In doing so, the Court decided to adjudicate the patent infringement claims before the antitrust claims.

The parties filed opening claim construction briefs on September 2, 2004 and reply briefs on September 23, 2004. After a preliminary review of the submissions, the Court requested that the parties submit a Joint Claim Construction Chart (“Chart”) in which the parties identify all disputed claim terms, the parties’ proposed claim constructions for each disputed claim term, and a list of stipulated claim constructions. The parties filed a final version of their Chart on January 20, 2005. Within the Chart, the parties identified thirty-five disputed claim terms. A *Markman* hearing was held on January 31, 2005. The Court issued its *Markman* Opinion and Order on April 7, 2005. The parties filed the instant motions for summary judgment on August 4, 2005.

Before addressing the merits of the parties’ motions, however, the Court notes that the parties have submitted volumes of lengthy submissions – some of which either expressly or effectively violate the local rules of this Court. Prior to filing the motions for summary judgment, the parties sought permission to file overlength briefs. The parties specifically requested permission to extend the page limit by twenty pages.² The Court granted the parties’ request and permitted them to submit briefs with a page limitation of sixty pages.

Notwithstanding this courtesy, the parties proceeded to present the Court with an excessive amount of written submissions. With respect to Defendants’ motion for summary judgment on infringement, rather than narrow the issues for the Court by moving on the strongest claims of the patents-in-suit, Defendants chose to move on all three patents – asserting a total of forty-four claims

² Local Civil Rule 7.2 provides a page limitation of forty pages. L. CIV. R. 7.2(b) (Gann 2005).

and approximately 107 different claim limitations. Defendants fail, however, to properly argue in their brief how or why the accused products meet each and every asserted claim limitation. *See Frank's Casing Crew & Rental Tools, Inc. v. Weatherford Intern., Inc.*, 389 F.3d 1370, 1378 (Fed. Cir. 2004) (noting that to succeed on an infringement claim, a patentee must prove by a preponderance of evidence that an accused device contains “each and every limitation set forth in a claim”). Instead, for the majority of the asserted claim limitations, Defendants offer a cursory statement asserting that the limitations are met, and incorporate by reference a ninety-one page expert declaration for further explanation. Defendants also refer the Court to the expert’s attached “claim chart” which consists of an additional ninety-four pages in small-type font. The Court finds it wholly inappropriate that Defendants attempt to support their entire motion on infringement, not within the confines of their moving brief, but through an expert declaration and attachment totaling close to 200 pages. This is an effective violation of the local rules governing page limitations and will not be permitted by the Court. Accordingly, during its infringement analysis, the Court will only address the individual claim limitations Defendants properly raise and argue in their moving brief and will disregard any claim limitations that are raised in a conclusory manner, without any supporting argument in the brief, and which incorporate by reference argument contained in the expert declaration and claim chart.

Similarly, Globespan attempts to circumvent the extended page limitation by submitting a document entitled “Plaintiff’s Response to Defendants’ Separate Statement of Facts.” Globespan attaches to this submission an addendum entitled “Claim Chart of Material Facts In Dispute.” This fifty-seven page chart is replete with factual and legal arguments concerning noninfringement of the ‘604 Patent. This submission is improper and directly contravenes both the purpose and directive

of a Rule 56.1 Statement. Pursuant to Local Civil Rule 56.1, on a motion for summary judgment, parties are to submit “a statement which sets forth material facts as to which there exists or does not exist a genuine issue.” L. CIV. R. 56.1. The purpose behind such a statement is to clarify the issues for the Court, not to increase the burden before it. *Id.* cmt. 2. The 56.1 statement is “not a place for legal argument,” nor is it a means by which to circumvent page limitations. *Id.* Globespan violates this rule by including numerous legal arguments and conclusions throughout the statement. As such, the Court will disregard all factual and legal arguments, opinions and any other portions of the 56.1 Statement which extend beyond statements of fact. With this background, the Court will now turn to the merits of the instant motions.

III. SUMMARY JUDGMENT STANDARD

As in all other cases, patent cases are amenable to summary judgment. *Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.*, 731 F.2d 831 (Fed. Cir. 1984). A party seeking summary judgment must “show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law.” FED. R. CIV. P. 56(c); *see also Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986); *Orson, Inc. v. Miramax Film Corp.*, 79 F.3d 1358, 1366 (3d Cir. 1996); *Healy v. New York Life Ins. Co.*, 860 F.2d 1209, 1219, n.3 (3d Cir. 1988), *cert. denied*, 490 U.S. 1098 (1989); *Hersh v. Allen Prod. Co.*, 789 F.2d 230, 232 (3d Cir. 1986). The threshold inquiry is whether there are “any genuine factual issues that properly can be resolved only by a finder of fact because they may reasonably be resolved in favor of either party.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 250 (1986) (noting that no issue for trial exists unless there is sufficient evidence favoring the nonmoving party for a jury to return a verdict in its favor). In

deciding whether triable issues of fact exist, the court must view the underlying facts and draw all reasonable inferences in favor of the non-moving party. *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 587 (1986); *Pa. Coal Ass’n v. Babbitt*, 63 F.3d 231, 236 (3d Cir. 1995); *Hancock Indus. v. Schaeffer*, 811 F.2d 225, 231 (3d Cir. 1987).

A movant must be awarded summary judgment on all properly supported issues identified in its motion, except those for which the nonmoving party has provided evidence to show that a question of material fact remains. *See Celotex*, 477 U.S. at 324. Put another way, once the moving party has properly supported its showing of no triable issue of fact and of an entitlement to judgment as a matter of law, for example, with affidavits, which may be “supplemented . . . by depositions, answers to interrogatories, or further affidavits,” *id.* at 322, “its opponent must do more than simply show that there is some metaphysical doubt as to the material facts.” *Matsushita*, 475 U.S. at 586. The non-moving party must “go beyond the pleadings and by [its] own affidavits, or by the ‘depositions, answers to interrogatories, and admissions on file,’ designate ‘specific facts showing that there is a genuine issue for trial.’” *Celotex*, 477 U.S. at 324.

IV. DISCUSSION

A. Infringement

Patent infringement entails a two-step process. *Research Plastics, Inc. v. Fed. Packaging Corp.*, 421 F.3d 1290, 1295 (Fed. Cir. 2005). The first step, claim construction, involves the determination of the scope and meaning of the patent claims. *Id.* Claim construction is a matter of law. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (*en banc*), *aff’d*, 517 U.S. 370 (1996). Second, the allegedly infringing device must be compared against the properly

construed claim. *Research Plastics*, 421 F.3d at 1295. This step requires a factual determination. *Id.* This Court has already construed the disputed claims terms identified by the parties in its *Markman* Opinion and Order. Thus, the Court must now determine whether the accused Globespan products infringe the asserted claims.

In order to succeed on a claim of literal infringement, the patentee must prove by a preponderance of evidence that an accused device contains “each and every limitation set forth in a claim.” *Frank’s Casing Crew*, 389 F.3d at 1378. “Even if an accused product differs enough from an asserted claim to preclude literal infringement, that product may infringe under the doctrine of equivalents if there is equivalence between those elements of the accused product and the claimed limitations of the patented invention that are not literally infringed.” *Zelinski v. Brunswick Corp.*, 185 F.3d 1311, 1316 (Fed. Cir. 1999) (citing *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997)). The doctrine of equivalents “does not require complete identity for every purpose and in every respect, . . . but does require substantial identity of function, means, and result.” *Lear Siegler, Inc. v. Sealy Mattress Co. of Mich., Inc.*, 873 F.2d 1422, 1425 (Fed. Cir. 1989) (quoting and citing *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 609 (Fed. Cir. 1950)).

Generally under 35 U.S.C. § 271(a), an individual will be liable for direct infringement if he makes, uses, or sells any patented invention. 35 U.S.C. § 271(a); *see Joy Techs. v. Flakt, Inc.*, 6 F.3d 770, 773 (Fed. Cir. 1993). An individual may be liable for indirect infringement under the theories of inducement and contributory infringement. Under 35 U.S.C. § 271(b), “[w]hoever actively induces infringement of a patent shall be liable as an infringer.” 35 U.S.C. § 271(b). To succeed on an inducement claim, “the patentee must show, first that there has been direct infringement, and second, that the alleged infringer knowingly induced infringement and possessed specific intent to

encourage another's infringement." *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1312 (Fed. Cir. 2005) (quoting and citing *MEMC Elec. Materials, Inc. v. Mitsubishi Materials Silicon Corp.*, 420 F.3d 1369, 1378 (Fed. Cir. 2005)) (internal quotations omitted). "[M]ere knowledge of possible infringement by others does not amount to inducement; specific intent and action to induce infringement must be proven." *Warner-Lambert Co. v. Apotex Corp.*, 316 F.3d 1348, 1364 (Fed. Cir. 2003).

Under 35 U.S.C. § 271(c), "[w]hoever offers to sell or sells within the United States . . . a component of a patented machine, manufacture, combination or composition . . . constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer." 35 U.S.C. § 271(c). To succeed on contributory infringement claim, "in addition to proving an act of direct infringement, plaintiff must show that defendant knew that the combination for which its components were especially made was both patented and infringing and that defendants' components have no substantial non-infringing uses." *Cross Med. Prods.*, 424 F.3d at 1312 (quotation and citation omitted). Indirect infringement, either by inducement or contributory infringement, "can only arise in the presence of direct infringement, though the direct infringer is typically someone other than the defendant accused of indirect infringement." *Dynacore Holdings Corp. v. U.S. Philips Corp.*, 363 F.3d 1263, 1272 (Fed. Cir. 2004); *see* 35 U.S.C. §§ 271(b) & (c).

1. The Technology and Patents

The patents-in-suit relate to the field of digital communications, particularly asymmetrical digital subscriber line (“ADSL”) technology. The inventions involve transmission systems utilizing multicarrier modulation, or discrete multitone (DMT) modulation. ‘322 Patent, col. 1, ll. 5-9. The patents disclose methods and products for improving data transmission within the carriers of a multicarrier system. The ‘447 Patent claims a method and apparatus “for adaptive, variable bandwidth, high-speed data transmission of a multicarrier signal over digital subscriber lines.” ‘447 Patent, abstract (filed May 3, 1993). The ‘322 Patent discloses an improved method and system for updating bit allocations to carriers in a transmission system to account for changes in temperature or traffic on transmission channels during normal operation. ‘322 Patent, col. 1, ll. 52-60 (filed Aug. 20, 1993). The ‘604 Patent also discloses a method and system that uses forward error correction coding and codeword interleaving techniques to correct problems resulting from impulse noise in a transmission system.³ ‘604 Patent, col. 1, l. 56 - col. 2, l. 59 (filed Aug. 17, 1993).

2. The Accused Products

The parties define “the accused products” as an allegedly infringing line of Globespan’s ADSL Products which includes forty-three ADSL chipsets.⁴ (Mem. in Supp. of Defs.’ Mot. for

³ For additional background information on the technology and the individual patents, see pages five through seven of the *Markman* Opinion. (*Markman* Op. at 5-7).

⁴ These products include: Titanium ADSL DMT CPE, Titanium PCI, Titanium Plus PCI, Titanium Plus USB, Titanium USB, Centragate USB, Viking I, Viking II, Viking II-Plus, Viking III, Viking III-Plus, Argon I, Argon II+, Argon 300, Argon 350, Argon 400, Argon 450, Argon 401, Argon 431, Argon 451, Argon 500, Argon 530, Argon 550, Titanium Express Packet CPE, Titanium Express ATM CPE, Centragate PCI, Titanium Ultra, Titanium Ultra Plus, Titanium Plus ADSL DMT for CPE, Titanium Fourte, Titanium FourtePlus, Titanium FourtePlus ILD,

Summ. J. of Infringement (“Defs.’ Opening Br.”) at 4 n.2). The parties also refer to Globespan’s “ADSL2/2+ Products.” Based on the record before the Court, it is unclear exactly how these products differ from Globespan’s ADSL Products. Defendants assert that the ADSL and ADSL2 products are different “modes” and “do not differ in any meaningful way with regard to bit swapping and bit allocation.” (Defs.’ Br. at 23 n.6; Williams Expert Report of May 23, 2005 (“Williams 5/23/05 Exp. Rep.”) ¶ 68). Globespan similarly asserts that both the ADSL and ADSL2 perform bit allocation in an identical manner, (Br. in Supp. of Pl.’s Mot. for Partial Summ. J. (“Pl.’s Br.”) at 24-25), but contradicts Defendants’ position by further asserting that ADSL2 products coordinate bit swapping in an entirely different way than the ADSL Products. (*Id.* at 25 n.20). For purposes of these motions, however, much of the Court’s focus will remain on the ADSL Products since both parties have moved for summary judgment of infringement/noninfringement as to these products.⁵

3. The ‘322 Patent: Claims 1–20

Defendants seek summary judgment that Globespan’s ADSL Products directly infringe claims 1–20 of the ‘322 Patent. Defendants also seek summary judgment on indirect infringement under 35 U.S.C. §§ 271(b), (c) and (f). Globespan moves for summary judgment on noninfringement based on Defendants’ inability to demonstrate that the accused products infringe, both literally and under the doctrine of equivalents, any of the asserted claims. In light of the

Fourte-RT, Titanium G12, Titanium G16, Titanium G16Plus, Octane, G24, Octane Plus, Octane Plus 130, Titanium Express, Titanium and Argon 430. These products were “exported from, imported into, made, sold, distributed or offered for sale in the United States at some time between July 1998 and the present.” (Antonian Cert., Ex. 15 at 9-11).

⁵ Only Globespan moves for summary judgment on noninfringement regarding the ADSL2 Products.

substantial overlap of arguments concerning these issues, the Court will address this aspect of the parties' motions together.

The '322 patent contains three independent claims. Claim 1, a representative claim, reads:

1. A method of changing a parameter of a transmission system using multicarrier modulation, comprising the steps of:

identifying symbols transmitted by the system by a *symbol count*;

communicating between a transmitter and a receiver of the system information identifying a change in said parameter and a *symbol count* value for implementing said change;

implementing said change at the transmitter in response to a transmitted symbol having a *symbol count* matching said value; and

implementing said change at the receiver in response to a received symbol having a *symbol count* matching said value.

'322 Patent, claim 1 (emphases added).

As an initial matter, the Court observes that Defendants have not addressed each limitation contained in the twenty asserted claims of the '322 Patent, which constitute approximately forty different claim limitations, in their moving brief. As the party seeking summary judgment of infringement, Defendants have the burden of demonstrating that the accused products contain "each and every limitation set forth in a claim." *Frank's Casing Crew*, 389 F.3d at 1378. Rather, Defendants state: "For a summary of uncontroverted evidence that Globespan's ADSL Products satisfy the limitations of the claims of the '322 Patent, see the Williams Declaration ¶¶ 102-235 and the claim chart attached to the Williams Declaration." (Defs.' Br. at 20). Defendants' burden cannot be met with this conclusory statement. (See *Celotex*, 477 U.S. at 323 ("a party seeking summary judgment always bears the initial responsibility of informing the district court of the basis for its

motion”). Moreover, it is not the Court’s responsibility to parse out factual and legal arguments contained in nearly 200 pages of additional documentation in order to determine whether each and every limitation is satisfied. *Cf. Biotec Biologische Naturverpackungen GmbH & Co. KG v. Biocorp, Inc.*, 249 F.3d 1341, 1353 (Fed Cir. 2001) (discussing how “[i]t is not the trial judge’s burden to search through lengthy technologic documents for possible evidence” when the burden rested on the accused infringer to come forward with evidence); *Schumer v. Lab. Computer Sys., Inc.*, 308 F.3d 1304, 1316 (Fed. Cir. 2002) (“It is not our task, nor is it the task of the district court, to attempt to interpret confusing or general testimony to determine whether a case of invalidity has been made out, particularly at the summary judgment stage.”). Based on Defendants’ failure to present adequate infringement arguments for the majority of the claim limitations in this patent, the Court will only address the disputed issues before the Court that are clearly discernable from the parties’ briefs.

a. “symbol” and “symbol count”

The main issue presented to the Court concerns the claim limitation “symbol count” which pervades most of the asserted claims in the ‘322 Patent. The Court construed the term “symbol” as “a finite, pre-selected representation of the information to be conveyed from the transmitter to the receiver.” (*Markman* Op. at 40). Globespan argues that the accused products do not meet the “symbol count” limitation because the counters in the accused products purportedly only count time. Globespan contends that a period of time cannot be a “symbol” in light of the Court’s construction because time is not a representation of information. (*See* Pl.’s Opp’n to Defs.’ Mot. for Summ. J. (“Pl.’s Opp’n”) at 6 (“The Court did *not* rule that the terms ‘symbol’ or ‘symbol count’ means ‘a period of time.’”) (emphasis in original)). Thus, Globespan contends that the accused products

cannot satisfy the “symbol count” claim limitation.

Defendants disagree and argue that the Court’s construction of “symbol” encompasses a period of time or “symbol period.” Defendants argue that the accused products meet this limitation based on the undisputed fact that the counters in the products count symbol periods. This dispute presents a claim construction issue, that is, whether the Court’s construction of “symbol,” which has been defined as “a finite, pre-selected representation of the information to be conveyed from the transmitter to the receiver,” includes time. The Court concludes that it does.

At the outset, the Court notes that Globespan failed to raise the argument that the claim term “symbol” should be construed to exclude periods of time in their claim construction briefs and at the *Markman* hearing. Instead, Globespan argued that the term “symbol” should be construed as “the modulated waveform resulting from a single iteration of the modulator.” (Chart at 6; Tr. of *Markman* Hr’g at 81:18-22, 84:17-86:15). After performing its claim construction analysis, the Court rejected Globespan’s proposed construction and adopted Defendants’ broader one. (*See Markman* Op. at 38-40).

Just as Globespan failed to identify any basis upon which to exclude time from the claim construction during the *Markman* process, Globespan continues in failing to provide the Court with any factual or legal support sufficient to warrant the adoption of a narrower construction for the claim term. Thus, the Court concludes that time falls within the definition of “symbol.” There is no indication in the claim language, specification or prosecution history to indicate that a person of ordinary skill in the art would construe the term “symbol” as excluding time. *See Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (reaffirming the importance of the intrinsic evidence, especially the specification, when construing claim terms).

Plaintiff argues that a preferred embodiment in the specification suggests that counting is limited to symbols that exclude time. Plaintiff cites the portion of the specification which states:

Preferably the counts at the transmitter and receiver are synchronized by the steps of: transmitting symbols in accordance with a predetermined criterion from the transmitter and setting the count at the transmitter to a predetermined state in dependence upon such transmission; and detecting received symbols satisfying the predetermined criterion at the receiver and setting the count at the receiver to the predetermined state in dependence upon such detection.

(Pl.'s Opp'n at 9 (quoting '322 Patent, col. 3, ll. 18-26)). This portion of the specification, however, describes the process of synchronizing counts at the transmitter and receiver and does not provide any indication that time must be excluded from the definition of "symbols." Indeed, the portion of the specification that describes the step of identifying a "symbol" by a "symbol count" similarly bears no indication that time is excluded from the definition. *See* '322 Patent, col. 2, ll. 61-64 ("Preferably the step of identifying symbols comprises maintaining a count identifying transmitted symbols at the transmitter and maintaining a count identifying received symbols at the receiver.").

Having clarified the construction of the term "symbol" as encompassing time, Globespan's argument that the accused products do not infringe the '322 Patent because they count time, as opposed to "symbols," must fail.

Globespan advances a second argument in support of its position that the accused products do not infringe any claims of the '322 Patent. Globespan's second argument concerns the claim limitations "implementing said change at the transmitter in response to a transmitted symbol having a symbol count matching said value" and "implementing said change at the receiver in response to a received symbol having a symbol count matching said value." '322 Patent, claim 1. Globespan

argues that the accused products do not satisfy these claim limitations because “[t]he implementation of the bit swap does not depend on any actual transmission or receipt of symbols.” (*See* Pl.’s Br. at 28; Pl.’s Opp’n at 9-11).

The Court construed these terms as “a change is effectuated at the [transmitter or receiver] in reaction to symbols that are in the process of being [transmitted or received] that have a symbol count matching said value.” (*Markman* Op. at 41-44). Globespan argues that the counters in the accused products perform their counting function independent of any transmitted or received symbols, and not “in reaction” to any symbols as required by the claim. Globespan likens the counters to clocks – devices that count increments of time – and, at a predetermined value, the counters set off a flag that triggers the bit swap process. Based on this description, Globespan argues that the accused products cannot meet a number of claim limitations required by the ‘322 Patent. (*See* Pl.’s Br. at 29). Without the threshold requirement that the counters count in response to any transmitted symbol, Globespan contends that the accused products clearly cannot infringe.

The Court rejects this argument. A close examination of Globespan’s second argument reveals that it is merely an extension of the first – that the claim term “symbol” cannot include “symbol periods.” Globespan summarizes this second argument in the following manner:

[T]he undisputed facts show that when bit swaps are implemented in the receivers of Globespan’s products, they are implemented in reaction to a count of elapsed *time*, not in reaction to a symbol in the process of being received.

(Pl.’s Opp’n at 11 (emphasis in original)). Based on the Court’s conclusion that the term “symbol” encompasses elapsed periods of time, Globespan’s position that bit swaps are not implemented “in reaction” to any “symbol” fails. Globespan’s own statement acknowledges that implementation

occurs “in reaction” to something – specifically, under the Court’s clarified construction, a symbol. Having reached these determinations, the Court denies Globespan’s request for summary judgment that the accused products do not infringe the ‘322 Patent because the counters do not count “symbols.”

b. Whether Defendants Provide *Prima Facie* Evidence of Infringement

In opposition to Defendants’ motion, Globespan argues that Defendants have not established a *prima facie* case of infringement. Globespan asserts that Defendants fail to demonstrate that the software files Defendants’ expert, Dr. Williams, relies upon in forming his opinions were ever implemented in a central office (CO) or customer premises (CP) as required by the patent. In addition, Globespan argues that Dr. Williams acknowledged that some of Globespan’s ADSL Products allow the disabling of the bit swapping which would result in a noninfringing product.

In response, Defendants argue that they submitted sufficient testimony demonstrating that the software files appear in the CO and CP. Dr. Williams’ declaration indicates that various software files operate in the CO and CP. Defendants also proffer evidence indicating that Globespan tested a set of firmware code files, or release, that was used for downstream bit swapping on the CO and CP. (Wang Dep. of Oct. 27, 2004 at 163:7-22). Defendants further point to the deposition testimony of William Scholtz, Globespan’s Director of ADSL Firmware, who was designated as Globespan’s 30(b)(6) witness to testify on the topic of the software code that Globespan produced in this litigation, including “its correlation to particular [a]ccused [p]roducts and modifications to the software code.” (Defs.’ Reply at 25). Scholtz stated that all of the accused products implement bit swapping in the downstream direction. (Scholtz Dep. of Oct. 12, 2004 at 198:5-8).

The Court concludes that Globespan fails to create a genuine issue of material fact. Defendants presented evidence from Globespan's own employee who admits that the software code upon which Dr. Williams relies in forming his opinion of infringement corresponds to all of the accused products which implement bit swapping in the downstream direction. (*Id.* at 145:20-24; *see also id.* at 152:7-9). Defendants also provided evidence that the software codes are implemented in both the CO and CP of the system. (Defs.' Reply at 7 (citing Decl. of Tim A. Williams, Ph.D. in Supp. of Defs.' Mot. for Summ. J. of Infringement ("Williams Decl.") ¶¶ 67-84, 94-235, Ex. B at 1-37)). Globespan attempts to create a genuine issue of material fact by arguing that Defendants must prove the implementation of software files with greater specificity. However, "[a]ttorney argument is no substitute for evidence." *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005). With respect to this patent, Globespan does not proffer its own evidence establishing a genuine issue of material fact. Similarly, Globespan fails to demonstrate the materiality of purported factual issues created by Dr. Williams' statement that disabled products result in noninfringing products. Consequently, the Court rejects Globespan's argument.

c. Globespan's Doctrine of Equivalents Argument

Globespan argues that the accused products do not infringe claims 1, 12 and 20 under the doctrine of equivalents. Globespan argues that extending the "in response to . . . a received symbol" claim limitation under the doctrine of equivalents to cover a system that only responds to an internal clock would vitiate the "in response to" limitation which is impermissible. (Pl.'s Br. at 32 (citing *Lockheed Martin Corp. v. Space Sys./Loral, Inc.*, 324 F.3d 1308, 1321 (Fed. Cir. 2003))). Globespan's entire argument, however, is based on the incorrect premise that the accused products do not implement bit swaps "in reaction" to "symbols." The Court has already concluded that this

argument is without merit. Accordingly, Globespan's motion for summary judgment that the accused products do not infringe under the doctrine of equivalents is denied.

d. ADSL2 Products Do Not Infringe

Globespan moves for summary judgment that none of its ADSL2 products infringe any of the '322 Patent's claims. In support of this argument, Globespan points to testimony from Dr. Williams in which he admitted that none of Globespan's ADSL2 products infringe the '322 Patent:

Q. Is it your opinion that Globespanvirata ADSL2/2-plus products infringe claims 1 through 20 of the '322 patent?

A. No.

(Williams Dep. of July 18, 2005 at 44:5-8). In response, Defendants argue that summary judgment on this issue is improper because Globespan failed to adduce sufficient evidence of noninfringement. Defendants assert that mere reliance on an expert's naked opinion is not enough.

The Federal Circuit has noted "[s]ince the ultimate burden of proving infringement rests with the patentee, an accused infringer seeking summary judgment of noninfringement may meet its initial responsibility either by providing evidence that would preclude a finding of infringement, or by showing that the evidence on file fails to establish a material issue of fact essential to the patentee's case." *Novartis Corp. v. Ben Venue Labs., Inc.*, 271 F.3d 1043, 1046 (Fed. Cir. 2001) (citation omitted). "Once the moving party has satisfied its initial burden, the opposing party must establish a genuine issue of material fact and cannot rest on mere allegations, but must present actual evidence. Issues of fact are genuine only if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." *Crown Operations Int'l, Ltd. v. Solutia Inc.*, 289 F.3d 1367, 1375 (Fed. Cir. 2002) (citing *Anderson*, 477 U.S. at 248).

Here, Globespan satisfied its burden by establishing that there are no material issues of fact with respect to the ADSL2 Products. The Court rejects Defendants' contention that Dr. Williams' statement constitutes a "naked" and inadmissible opinion, in light of his accompanying statement that the basis for his infringement opinions are set forth at length in his May 23, 2005 expert report. (Williams Dep. of July 18, 2005 at 46:21-47:14). Moreover, even if Williams' statement were to be considered inadmissible, there would still be an absence of evidence showing infringement by the ADSL2 Products.

As such, the burden shifts to Defendants who must come forward with evidence demonstrating the existence of a genuine issue of material fact. Defendants have not proffered any such evidence. Consequently, the Court grants Globespan's motion for summary judgment that Globespan's ADSL2 Products do not infringe the '322 Patent.

e. Defendants' Motion for Infringement of Certain Claim Limitations

The Court will now determine whether Defendants' have sufficiently demonstrated infringement of certain claim limitations in the '322 Patent.

i. "*symbol*" and "*symbol count*"

Having resolved the earlier claim construction issue regarding these key terms, the Court concludes that the accused products meet the "symbol" and "symbol count" limitations found in all claims of the '322 Patent based on the undisputed evidence in the record. In particular, Globespan admits that the counters in the accused products count "elapsed periods of *time*" which this Court concluded are "symbols." (See Pl.'s Opp'n at 5 (emphasis in original); Williams Decl. ¶ 96). Consequently, the Court grants summary judgment that the accused products satisfy the "symbol"

and “symbol count” limitations.

ii. “*identifying symbols transmitted by the system by a symbol count*”

Defendants properly argue one additional claim limitation in their moving brief. (Defs.’ Br. at 19-20). Defendants assert that the accused products satisfy “identifying symbols transmitted by the system by a symbol count” limitation. The Court construed this term as “connecting or associating a symbol count with individual symbols or groups of symbols.” (*Markman* Op. at 35-38). Defendants proffered undisputed evidence that the accused products contain a set of three cascading counters. (Williams Decl. ¶¶ 71-80; *see* Decl. of Professor Thomas E. Fuja, Ph.D. in Supp. of Pl.’s Opp’n to Defs.’ Mot. for Summ. J. (“Fuja Decl.”) ¶ 47). Counter 1 counts discrete intervals of time, which the parties refer to as “clock ticks.” (Williams Decl. ¶ 75; Fuja Decl. ¶ 44). Counter 2 counts individual symbols, each constituting a specific number of clock ticks. (*See* Williams Decl. ¶ 76; Fuja Decl. ¶ 44). And Counter 3 counts “superframes,” each constituting a specific number of symbols derived from Counter 2. (Williams Decl. ¶ 74, 77; *see* Fuja Decl. ¶ 47). During the transmission of one symbol, Defendants assert that Counter 2 maintains a unique value with that particular symbol. (Williams Decl. ¶¶ 106-09). Similarly, after a certain number of symbols are transmitted, Counter 3 maintains a value as well – a superframe. (*Id.*). Thus, Defendants contend that symbols are identified or connected with a symbol count value as they are processed throughout the accused products. (Decl. of Tim A. Williams, Ph.D. in Supp. of Defs.’ Opp’n to Pl.’s Mot. for Partial Summ. J. (“Williams Opp’n Decl.”) ¶ 417).

The only basis upon which Globespan opposes this argument is the flawed argument that “symbols” cannot include time. (*See* Fuja Decl. ¶ 54; Pl.’s Resp. to Defs.’ Separate Statement of Undisputed Facts (“Pl.’s Resp. to Defs.’ 56.1 Stmt.”) ¶ 16). For the reasons discussed above, this

argument and accompanying evidence are insufficient to create a genuine issue of material fact. Consequently, the Court grants summary judgment that the accused products satisfy the “identifying symbols transmitted by the system by a symbol count” limitation.

f. Remaining Claim Limitations in the ‘322 Patent

As for the remaining claims of the ‘322 Patent, Defendants have not provided the Court with sufficient substantive arguments in their briefs for the Court to reach the issue of whether each and every other limitation of the asserted claims is found in the accused products. As such, the Court will not address these limitations. Consequently, summary judgment of infringement as to those claim limitations is denied.

g. Defendants’ Direct/Indirect Infringement Arguments

Because Defendants have not proven at summary judgment that the accused products meet each and every limitation of the asserted claims, summary judgment of both direct and indirect infringement is denied.

h. Conclusion

Based on the foregoing analysis, the Court: 1) denies Globespan’s motion for summary judgment that the accused products do not infringe claims 1–20 of the ‘322 Patent, both literally and under the doctrine of equivalents; 2) grants Globespan’s motion for summary judgment that Globespan’s ADSL2 Products do not infringe the ‘322 Patent; 3) grants Defendants’ motion for summary judgment that the accused products satisfy the “symbol” and “symbol count” limitations; 4) grants Defendants’ motion for summary judgment that the accused products satisfy the “identifying symbols transmitted by the system by a symbol count” limitation; 5) denies Defendants’ motion for summary judgment of infringement as to the remaining claim limitations in the ‘322

Patent; and 6) denies Defendants' motion for summary judgment of direct and indirect infringement of claims 1–20 of the '322 Patent.

4. The '447 Patent: Claims 1 and 2

Defendants assert that Globespan's ADSL Products infringe claims 1 and 2 of the '447 Patent. Globespan disagrees and argues that the ADSL and ADSL2 Products do not infringe. Claim 1, an independent claim, and claim 2, a dependent claim, of the patent read:

1. In a multicarrier data transmission system that transmits data continuously over dispersive, noisy subscriber loops for digital service from a telephone central office to a user location and corresponding digital service between transmitters and receivers at said user location and said central office, a method for implementing variable transmission bandwidth as a function of line frequency-variable attenuation, noise power spectrum, a set of programmed and possibly variable carrier target bit-error-rates, and a programmed and possibly frequency-variable transmit power mask to improve data transmission speed or to improve performance margin at any given transmission speed subject to a power or power-spectral-density constraint, said method using subcarrier-indexed measurements of channel gains, channel noises, desired carrier bit-error-rates, and the programmed power mask to provide subcarrier-indexed estimates of transmission quality and to maintain the transmission quality at high levels, comprising the steps of:

(a) sorting the subcarrier-indexed estimates of the transmission quality, scaled by the desired subcarrier bit-error-rates, into an invertible ordering for assessment of the relative data-carrying capabilities of the subcarriers at initialization and/or during data transmission;

(b) calculating bit and energy allocation tables for said multicarrier data transmission system based on the sorted subcarrier-indexed estimates for either improving aggregate transmitted data rate at fixed performance margin with said power or power-spectral-density constraint or improving performance margin at a fixed data rate with

said power or power-spectral-density constraint;

(c) communicating said bit and energy allocation tables between the transmitters and the receivers of said multicarrier transmission system; and

(d) implementing said bit and energy allocation tables in coordination between the transmitters and the receivers during initialization of said multicarrier transmission system and/or during simultaneous transmission of said digital data by said multicarrier transmission system.

2. A multicarrier transmission system as recited in claim 1 and further comprising the steps of:

communicating changes in bit allocation by removing a single or several bits from those bits allocated to a carrier or subcarrier with a quality estimate below a specified threshold and placing that bit or bits on a second subcarrier or carriers with a quality estimate exceeding a second specified threshold; and

coordinating the implementation of said changes in both the transmitters and the receivers by communication through a bi-directional overhead data channel, said overhead data channel being simultaneously present with the user data channel on the same communication line.

‘447 Patent, claims 1 & 2. The parties identified the following claim limitations within the asserted claims.

a. Claim 1: Preamble

Defendants assert that the accused products include each limitation found in the preamble. Defendants, however, fail to provide the Court with any supporting argument. Aside from the general and conclusory statement provided in their brief, Defendants refer the Court to the declaration of their expert. As discussed above, the Court will not address any claim limitations raised in a conclusory manner in their brief, without any supporting argument.

b. “subcarrier-indexed estimates of the transmission quality”

Defendants argue that the accused products meet this limitation because the NSR values in the Globespan code are subcarrier-indexed estimates of transmission quality. This fact is undisputed by Globespan, and was admitted by Globespan’s expert, Dr. Fuja. (Pl.’s Resp. to Defs.’ 56.1 Stmt. ¶ 68; Fuja Dep. of July 8, 2005 at 151:11-18). Accordingly, the Court grants summary judgment that the accused products satisfy this claim limitation.

c. “scaled by the desired subcarrier bit-error-rates”

Globespan contends that its ADSL and ADSL2 products do not meet the claim limitation “scaled by the desired subcarrier bit-error-rates.” At the *Markman* hearing, the parties stipulated that the claim term “scaled” means “changed by a factor.” (*Markman* Op. at 21). In the Joint Claim Construction Chart, the parties stipulated that “bit-error-rates” means “on average, the ratio of the number of bits in error to the total number of bits received.” (Chart at 16). Globespan argues that Defendants’ expert, Dr. Williams, stated that the subcarrier-indexed estimates in the accused products are noise-to-signal values (“NSR values”). Dr. Williams further opined that this “scaling” limitation is met because the NSR values are multiplied or “scaled” by “target margins.” Notably, Dr. Williams admits that “target margins” are not “bit-error-rates.” (*See* Williams Dep. of July 18, 2005 at 127:15-18). Instead, target-margins are proxies for “bit-error-rates.” (Williams 5/23/05 Exp. Rep. ¶¶ 506-07, 563). Based on Williams’ admission that desired subcarrier “bit-error-rate” is not the same as “target margin,” Globespan contends that there can be no literal infringement.

Defendants argue that the accused products read on this limitation. In support of this argument, Defendants propose a broad claim construction for the claim term. Defendants argue that “scaled by the desired subcarrier bit-error-rates” means scaled by “the desired bit-error-rate *and other*

parameters, which parameters may include elements of SNR gap.” (Mem. in Supp. of Defs.’ Opp’n to Pl.’s Mot. for Partial Summ. J. (“Defs.’ Opp’n”) at 32) (emphasis in original). Defendants rely on a preferred embodiment of the patent which indicates that the subcarrier-indexed estimates of transmission quality are scaled by an SNR gap. Defendants assert that the SNR gap is a separate calculation that factors in bit-error-rates and other parameters. (*Id.*; citing ‘447 Patent, col. 7, ll. 45-49). Under this construction, Defendants assert that the accused products satisfy this claim limitation because the NSR values are scaled (multiplied) by performance margin – a value in which bit-error-rate is a factor.

The Court agrees with Globespan that the accused products do not literally infringe this claim limitation. First, prior to the instant motions, the parties stipulated to the constructions of the key terms in this limitation – namely, “scaled” and “bit-error-rate.” Based on those stipulated constructions, this claim limitation should be read as “changed by a factor by the desired subcarrier averaged ratios of the number of bits in error to the total number of bits received.” Such a construction does not encompass parameters other than “bit-error-rates” as scaling factors. Second, the plain language of the claim is clearly limited to “bit-error-rates” and does not include other parameters.

Third, Defendants’ argument that the Court should broaden the claim construction so as to cover the preferred embodiment is inapt. Defendants cite *Chimie v. PPG Industries, Inc.*, 402 F.3d 1371, 1377 (Fed. Cir. 2005), for the axiom that “a construction that would not read on the preferred embodiment . . . would rarely if ever [be] correct.” *Id.* (quotations omitted). However, this axiom is not a license for courts to rewrite claims as they see fit. As the Federal Circuit reiterated in *Phillips*, “[i]t is a bedrock principle of patent law that the claims of a patent define the invention to

which the patentee is entitled the right to exclude.” 415 F.3d at 1312 (quotations omitted). In the *Chimie* case relied upon by Defendants, the Federal Circuit also noted that “[c]laim construction begins with the intrinsic evidence of record, looking first to the claim language itself to define the scope of the patented invention.” 402 F.3d at 1377. When claim language lacks “sufficient clarity to ascertain the scope of the claims,” courts will turn to the written description for guidance. *Id.* Here, the claim language is clear. The “scaling” step is done by the “bit-error-rate,” and nothing more. Thus, the Court concludes that the accused products do not literally meet the “scaling” limitation in light of the undisputed evidence that scaling in the accused products is done by target or performance margins, and not bit-error-rates. Based on the conclusion that the accused products do not contain each and every limitation set forth in the asserted claims, the Court grants Globespan’s motion for summary judgment that its ADSL and ADSL2 Products do not literally infringe claims 1 and 2 of the ‘447 Patent. *See Frank’s Casing Crew*, 389 F.3d at 1378. The Court will now turn to the parties’ infringement arguments under the doctrine of equivalents.

Defendants argue in the alternative that the accused products infringe under the doctrine of equivalents. Defendants contend that multiplication of the NSR values by the target margins essentially performs the same function as scaling NSR values with bit-error-rates because they both ensure “control over the number of bits allocated to a bin to account for possible changes in the line or errors in measurement.” (Defs.’ Br. at 27-28 n.8). Globespan’s scaling step, Defendants argue, perform in the same way as the claimed method by “lowering the measured NSR to an adjusted NSR.” (*Id.*). Lastly, Defendants contend that the same result is achieved because “fewer or no bits will be allocated to weaker carriers if the adjusted NSR is used than would be if the measured NSR was used.” (*Id.*). Defendants submit that the “two operations are mathematically equivalent.” (*Id.*

(citing Williams Decl. ¶ 276)).

In response, Globespan argues that in a doctrine of equivalents analysis the Court must focus on the claim elements individually, as opposed to the invention as a whole. Globespan submits the expert declaration of Dr. Fuja who asserts that scaling by bit-error-rates and scaling by target margins lead to substantially different results. (Fuja Decl. ¶ 15). Specifically, “[t]he desired BER indicates a minimally acceptable level of performance, while the target margin indicates how far (in terms of energy expended) the system is targeted to be operating from that minimally acceptable level of performance.” (*Id.* at ¶ 15). Thus, scaling by target margin does not achieve substantially the same result as scaling by bit-error-rate. Globespan further asserts that its products use a target margin of approximately 0 to -31 dB. (Fuja Decl. Ex. 4, at 2). The ‘447 Patent, however, discloses a bit-error-rate of 10^{-7} . Thus, from a purely mathematical standpoint, Globespan argues that the results are not substantially the same.

Drawing all favorable inferences in Globespan’s favor as the non-moving party on this issue, the Court finds that a genuine issue of material fact precludes entry of summary judgment that the accused products infringe this claim limitation under the doctrine of equivalents. Globespan adduced sufficient evidence to establish that the accused products do not perform substantially the same function in substantially the same way to obtain substantially the same result as the “scaling” limitation in claim 1. *See Lear Siegler*, 873 F.2d at 1425. Accordingly, summary judgment that the accused products meet this claim limitation is denied.

d. *“sorting the subcarrier-indexed estimates of the transmission quality . . . into an invertible ordering”*

The Court construed this term as “segregating the estimates into groups based on specified

criteria, and does not require reordering.” (*Markman* Op. at 20-21). Defendants argue that this limitation is met based on the undisputed evidence that the NSR values are scaled and stored in the NSR_ADR table. (Williams Decl. ¶ 278). The values are stored in the order of the frequency of the bin. Defendants assert that this ordering is invertible because “the bin number is implied by the memory address of the bin’s entry in the table and is *capable* of being reversed.” (Def.’s Br. at 28 (emphasis in original); Williams Decl. ¶ 278; Wang Dep. of Oct. 26, 2004 at 164:16-21).

Globespan argues that the accused products do not meet this claim limitation because there is no segregating or ordering of estimates. Globespan asserts that the products measure estimates and then store the results in its memory. Globespan argues “[s]imple logic dictates that the act of storing quality estimate values in the *same* predetermined order in which they were measured cannot possibly constitute ‘sorting’ of those estimates.” (Pl.’s Br. at 36-37) (emphasis in original).

Globespan’s argument is without merit. The Court finds no basis for excluding the manner in which Globespan’s products operate, that is, by arranging estimates in the same order as they are scaled, from the Court’s construction of “sort.” Adopting Globespan’s logic would result in an unduly narrow construction for this claim limitation. If this Court were to accept Globespan’s argument and exclude the act of storing estimates in the same order from the “sorting” step limitation, the Court would effectively be importing an additional limitation requiring reordering of estimates. Globespan proffered this argument during the *Markman* process and the Court soundly rejected it. (*Markman* Op. at 19-21). As such, the Court finds that there is sufficient evidence in the record proving that the accused products are “sorted” or “segregated” as they are scaled and then stored in the NSR_ADR table in the order of frequency of the bin. (*See* Williams Decl. ¶ 278; Wang Dep. of Oct. 26, 2004 at 164:16-21). Consequently, the Court grants summary judgment in favor

of Defendants and against Globespan that the accused products meet the “sorting” step claim limitation of claim 1.

e. *“for assessment of the relative data-carrying capabilities of the subcarriers at initialization and/or during data transmission”*

Defendants argue that the accused products meet this claim limitation because the code creates an NSR_ADR table that is used for bit allocation. (Williams Decl. ¶ 281-82). The table, which is updated during transmission, is used to assess the subcarriers in order to decide whether to perform a bit swap. (Wang Dep. of Oct. 27, 2004 at 76:17-77:4, 78:4-78:24). Globespan does not contest this issue.⁶ Consequently, the Court grants summary judgment that the accused products meet this claim limitation.

f. *“calculating bit and energy allocation tables for said multicarrier data transmission system based on the sorted subcarrier-indexed estimates for either”*

Defendants fail to provide the Court with supporting argument as to why this limitation reads on Globespan’s products. Instead, Defendants provide a general and conclusory statement and cite the declaration of their expert. Consequently, as discussed above, the Court will not address Defendants’ conclusory statements regarding this limitation.

g. *“improving aggregate transmitted data rate at fixed performance margin with said power or power-spectral-density constraint or”*

Defendants argue that the accused products meet this claim limitation. Relying on the declaration of their expert, Defendants assert that the accused products use a variable-rate bit

⁶ In Globespan’s response to Defendants’ Statement of Facts, Globespan does appear to take issue with the order of the “sorting” and “calculating” steps, and whether the steps must be completed before the next step begins. (Pl.’s Resp. to Defs.’ 56.1 Stmt. ¶ 71). This, however, does not rebut the evidence proffered by Defendants in proving this claim limitation and therefore does not create any issue of material fact.

algorithm that improves aggregate transmitted data rate at a fixed performance margin, while accounting for a power or power-spectral-density constraint. In support of this opinion, Dr. Williams relies on a document labeled as either Exhibit 21 or 35 in the Antonian Certification (page number GSV00014327). (See Williams Decl. ¶ 286 & Ex. B. at 44). This document, however, has not been filed with the Court.⁷ As such, the Court concludes that Defendants have not proffered sufficient proof to establish that this claim limitation is met by the accused products. Accordingly, summary judgment that the accused products meet this claim limitation is denied.

h. *“[for] improving performance margin at a fixed data rate with said power or power-spectral-density constraint”*

Similarly, Defendants argue that this limitation is met because the accused products use an algorithm for improving performance margin at a fixed data rate with power or power-spectral-density constraint. (Williams Decl. ¶¶ 288-89). Again, Defendants argue that Dr. Fuja agreed that the accused products “use a bit allocation algorithm that seeks to equalize and maximize a performance margin at a fixed data rate.” (Defs.’ Br. at 31). The record supports this statement. (See Fuja Dep. of July 8, 2005 at 180:16-181:2). The document upon which Dr. Williams draws his opinion, however, has not been provided to the Court. (Williams Decl. ¶¶ 289 (citing Antonian Cert., Ex. 21 at GSV00014328 & Ex. B. at 44)). The Court finds the statement by Dr. Fuja

⁷ Defendants argue that Dr. Fuja admitted that the accused products have a “bit allocation algorithm that fixes the margin and calculates a data rate for that fixed margin.” (Defs.’ Br. at 30-31 (citing Fuja Dep. of July 8, 2005 at 179:12-180:9; 185:13-186:1; 186:19-187:3)). However, the deposition testimony cited by Defendants does not support this statement. In this testimony, Dr. Fuja refers to an algorithm that improves performance margin at a fixed data rate. Dr. Fuja does not appear to be discussing an algorithm that improves data rate at fixed performance margin as Defendants suggest. (Fuja Dep. of July 8, 2005 at 179:12-181:16). Accordingly, Defendants fail to provide evidentiary support for this statement.

acknowledging the algorithm insufficient to prove that all aspects of the claim limitation are met. Consequently, the Court concludes that Defendants fail to prove that the accused products meet this limitation. Therefore, summary judgment that the accused products meet this claim limitation is denied.

i. “communicating said bit and energy allocation tables between the transmitters and the receivers of said multicarrier transmission system”

In addition to a conclusory statement that the accused products meet this limitation, Defendants argue that Globespan’s expert, Dr. Fuja, admitted that the “communicating” step limitation is found in Globespan’s products. (Fuja Dep. of July 8, 2005 at 190:1-7). In response, Globespan argues that the accused products do not meet this claim limitation because issues of fact preclude a finding that the accused products satisfy the “multicarrier transmission system” limitation. (Pl.’s Opp’n at 23; Pl.’s Resp. to Defs.’ 56.1 Stmt. ¶ 75). This limitation finds its antecedent basis in the preamble.⁸ Based on the parties’ conclusory arguments that the accused products meet or do not meet the structural limitations set forth in the preamble describing the “multicarrier transmission system,” (*see supra* Part IV.A.4.a), both parties share the position that those structures define the term “multicarrier transmission system,” and are thus limiting. This Court agrees. *See Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (stating generally that “a preamble limits the invention if it recites essential structure or steps, or if it is ‘necessary to give life, meaning, and vitality’ to the claim”). However, as indicated in Part IV.A.4.a of this Opinion, the Court will not address whether the accused products meet the limitations in the preamble because

⁸ The same issue was raised during the *Markman* process, but the Court reserved its decision and instructed the parties to raise the issue again in their post-*Markman* briefings if the issue remain disputed. (*Markman* Op. at 12 n.5). Based on Globespan’s argument, this appears to be the case.

of Defendants' failure to properly brief the issue for the Court. Consequently, summary judgment that the accused products meet this claim limitation of claim 1 is denied.

- j. ***“implementing said bit and energy allocation tables in coordination between the transmitters and the receivers during initialization of said multicarrier transmission system” and “during simultaneous transmission of said digital data by said multicarrier transmission system”***

Relying on the expert declaration of Dr. Williams, Defendants assert that these limitations are satisfied. First, Dr. Williams opines that the “implementing” step is met because during a period known as Pre-Showtime, the accused products use bit and gain energy allocation tables which are transmitted from receiver to transmitter to coordinate transmission. (Williams Decl. ¶¶ 293-94, Ex. B at 45-47). Additionally, Defendants argue that the second limitation is met because information provided by the bit and gain allocation tables is also used by the transmitter and receiver for the transmission of data during Showtime, the period after initialization. (*Id.*; see Wang Dep. of Oct. 26, 2005 at 81:12-13). Dr. Williams bases his analysis on Globespan code and routines that use the tone ordering table for modulation. (Williams Decl. ¶¶ 293-94, Ex. B at 45-47). Globespan responds to both limitations by advancing the same argument as above, that its products do not meet the “multicarrier transmission system” limitation. (Pl.’s Opp’n at 23; Pl.’s Resp. to Defs.’ 56.1 Stmt. ¶ 76). Because the Court will not consider the conclusory statement raised by Defendants concerning the structural limitations in the preamble, summary judgment that the accused products meet this claim limitation must be denied at this time.

- k. ***“communicating changes in bit allocation by removing a single or several bits from those bits allocated to a carrier or subcarrier with a quality estimate below a specified threshold and placing that bit or bits on a second subcarrier or carriers with a quality estimate exceeding a second specified threshold”***

Defendants argue that the accused products satisfy this claim limitation. In support of their

position, Defendants rely on the expert declaration of Dr. Williams. Dr. Williams opines that this limitation means that the NSR value (quality estimate) of subcarrier 1 from which a bit will be removed must be below threshold 1, and the NSR value of subcarrier 2 to which a bit will be added must be above threshold 2 for a bit swap to occur. (Williams Decl. ¶ 301). Defendants assert that the two thresholds may be expressed in terms that are relative to each other. (*Id.* ¶ 300 (citing ‘447 Patent, col. 11, ll. 20-29)). In the accused products, Dr. Williams contends that the accused products require two tests (“Bit Swap Test 1” and “Bit Swap Test 2”) to be satisfied for a bit swap to occur. (Williams Decl. ¶ 303). Dr. Williams explains that “Bit Swap Test 1 establishes a threshold requirement for the carrier from which a bit is to be removed and a second threshold requirement for the carrier to which a bit is to be added.” (Williams Decl. ¶ 305). Once Bit Swap Test 1 is met, the accused products perform Bit Swap Test 2. This test “establishes a threshold requirement for the bin from which a bit is to be removed and a second threshold requirement for the bin to which a bit is to be added.” (*Id.* ¶ 308). Additionally, Defendants contend that the accused products also exchange messages to communicate changes in bit allocation. (*Id.* ¶ 310). Thus, Defendants assert that Globespan’s products satisfy this claim limitation.

Globespan disagrees for several reasons. First, Globespan argues that the accused products fail to meet this claim limitation because they do not literally satisfy the step of communicating changes. Specifically, Globespan argues that this claim limitation excludes the method performed by the accused products – one in which communication is achieved by first exchanging messages between receiver and transmitter prior to any change in bit allocation. (Pl.’s Opp’n at 24 (citing Williams Decl. ¶ 310; Williams 5/23/05 Exp. Rep. at ¶¶ 103, 106-08, 601, 605, 611-13, 615, 620, 632; Williams Dep. of July 18, 2005 at 80:4-25)). In response to this argument, Defendants argue

that Globespan's construction is unduly narrow, particularly in light of the preferred embodiment in the patent.

The Court agrees with Defendant that under the proper construction, the claim encompasses a method that includes the step of exchanging messages prior to the bit swap. The specification describes an adaptive-update procedure that keeps track of channel variations and implements bit swaps as necessary to reduce the overall bit-error-rate. '447 Patent, col. 11, ll. 20-29. Figure 11 of the patent illustrates this procedure. *Id.* at col. 11, l. 29 - col. 12, l. 6. The procedure also incorporates a simple handshake procedure illustrated in Figure 12. *Id.* at col. 11, ll. 62-64. Keeping in mind the principle that a "person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification," *Phillips*, 415 F.3d at 1313, the Court concludes that one of ordinary skill in the art would understand that the "communicating" step includes the step of exchanging messages between the transmitter and receiver prior to the actual implementation of a bit swap. Defendants' expert opined that "a person of ordinary skill in the art reading the claim and the specification of the '447 Patent would not understand that claim 2 calls for communicating a change in bit allocation by actually conducting a bit swap." (*See Williams Opp'n Decl.* ¶ 424). The Court agrees and rejects Globespan's argument that the accused products do not meet this claim limitation because messages between receiver and transmitter are exchanged prior to the implementation of any changes in bit allocation.

Next, Globespan argues that the margin values are "significantly different" from the type of quality estimates identified by Dr. Williams, i.e., MSE, SNR, or SNR/G values. (*Fuja Decl.* ¶¶ 28-29). Relying on the opinion of Dr. Fuja, Globespan asserts that margin values cannot be "quality

estimates” because they may change even though there is no change in transmission quality. The Court finds nothing in the claim, however, that restricts “quality estimates” to constant values. Moreover, Dr. Fuja explains that the term “margin” describes “how much *additional* energy is being used above the minimum so as to guarantee robustness.” (*Id.* ¶ 28 (emphasis in original)). Thus, it appears that a term describing how much energy is needed to guarantee robustness of a carrier, or make a carrier perform better, is an estimate of quality. Consequently, Globespan’s argument that the claim limitation is not satisfied because “margin values” cannot be “quality estimates” must fail.

Globespan further argues that disputed issues of material fact preclude summary judgment. In particular, Globespan argues that contrary to Dr. Williams’ assertion, the bit swap process is not performed in the same way as the claimed method. Globespan’s expert, Dr. Fuja, explains in his declaration that the accused products use a different technique for bit-swapping. In particular, the method involves computing the current “difference between the largest and smallest margins among all currently active carriers,” then comparing it with “the predicted margin difference that would occur if a bit were to be added to the carrier with the largest margin and removed from the carrier with the smallest margin.” (Fuja Decl. ¶ 30). According to Dr. Fuja, no swap will take place if the predicted margin difference exceeds the current margin difference. (*Id.* ¶ 32). A bit swap may occur, however, if the predicted margin difference is less than the current margin difference. Based on this method, Globespan argues that the accused products do not meet the requirement that “a quality estimate of one carrier must be below a specified threshold, and a carrier estimate of a different carrier must be above a second specified threshold.” (*Id.* ¶ 30).

Based on the record before the Court, the Court concludes that Globespan proffered sufficient evidence to create a genuine issue of material fact as to whether Globespan’s products practice this

claim limitation. It is unclear from the record whether the accused products perform a bit swap when “quality estimates” fall below a specified threshold of one carrier and exceed another. Dr. Fuja’s explanation suggests that a bit swap may occur independent of these factors. This is a factual issue that cannot be resolved on summary judgment. Consequently, summary judgment will not be granted at this time. At trial, the factfinder must determine whether the accused products perform this “communicating” step in the same manner as claimed in the patent.

Globespan also moves for summary judgment that the accused products do not practice this claim limitation under the doctrine of equivalents. Globespan offers a conclusory argument, without citing any factual support, that the accused products communicate changes in bit allocation by exchanging messages, and not by removing or placing bits from one carrier to another. (Pl.’s Br. at 39-40). Thus, according to Globespan, the accused products do not perform in substantially the same way as required by the claim. This argument merely repeats Globespan’s literal noninfringement argument that this Court already rejected. Globespan further asserts in its reply brief that “expanding the claim to cover Globespan’s products under the doctrine of equivalents would vitiate a claim limitation in violation of the law,” but fails to provide any explanation as to how this is so. (*See* Pl.’s Reply at 18). As such, Globespan fails to meet its burden of showing Defendants will be unable to prove infringement under the doctrine of equivalents. Consequently, summary judgment as to this issue is denied.

1. ***“coordinating the implementation of said changes in both the transmitters and the receivers by communication through a bi-directional overhead data channel, said overhead data channel being simultaneously present with the user data channel on the same communication line”***

Defendants fail to provide the Court with supporting argument as to why this limitation reads on Globespan’s products. Instead, Defendants provide a general and conclusory statement and cite

the declaration of their expert. As discussed above, the Court will not address any claim limitations raised in a conclusory manner in the brief, without any supporting argument.

m. Direct Infringement/Literal Infringement

Because Defendants have not proven at summary judgment that the accused products meet each and every limitation of the asserted claims, either literally or under the doctrine of equivalents, the Court denies summary judgment of both direct and indirect infringement.

n. Conclusion

For the reasons discussed above, the Court: 1) grants summary judgment in favor of Defendants that the accused products satisfy the “subcarrier-indexed estimates of the transmission quality” claim limitation; 2) grants summary judgment in favor of Globespan that its ADSL and ADSL2 Products do not literally meet the “scaled by the desired subcarrier bit-error-rates” limitation; 3) denies Defendants’ motion that the accused products satisfy the “scaled by the desired subcarrier bit-error-rates” limitation under the doctrine of equivalents; 4) grants summary judgment in favor of Defendants and against Globespan that the accused products meet the “sorting the subcarrier-indexed estimates of the transmission quality . . . into an invertible ordering” limitation of claim 1; 5) grants Defendants’ motion for summary judgment that the accused products meet the “for assessment of the relative data-carrying capabilities of the subcarriers at initialization and/or during data transmission” limitation; 6) denies Globespan’s motion for summary judgment that the accused products do not satisfy the “communicating” step limitation literally and under the doctrine of equivalents; 7) denies Defendants’ motion for summary judgment of both direct and indirect infringement of claims 1 and 2 of the ‘447 Patent; 8) grants Globespan’s motion for summary judgment that its ADSL and ADSL2 do not literally infringe claims 1 and 2 of the ‘447 Patent; and

9) denies Globespan's motion for summary judgment that the accused products do not infringe claims 1 and 2 of the '447 Patent under the doctrine of equivalents.

5. The '604 Patent: Claims 1–22

Defendants move for summary judgment of direct and indirect infringement on claims 1–20 of the '604 Patent. Globespan only moves for summary judgment that none of Globespan's ADSL2 Products infringe any of the asserted claims. In light of Defendants' failure to provide adequate infringement arguments in their briefs for each and every limitation of the asserted the claims in the '604 Patent, the Court will only address the disputed issues that have been clearly presented to the Court.

a. Whether Defendants Provide *Prima Facie* Evidence of Infringement

In opposition to Defendants' motion, Globespan argues that Defendants have not established a *prima facie* case of infringement. Globespan asserts that Defendants' proofs rest entirely on the opinion of Dr. Williams, who bases his opinion on various software files, or source code, that were stored in the Globespan database. Globespan proffers the declarations of Yan Wu, a Globespan employee involved in the development of DMT ADSL Products. (Wu Decl. ¶ 1). Wu states that some, but not all, of Globespan ADSL Products can be configured to implement the feature permitting fast path data and interleaved data. (*Id.* ¶ 5). Globespan ADSL Products, however, require a "complete set of firmware code files," or a production release, for proper configuration. (*Id.* ¶ 25). Globespan contends that Defendants fail to establish that the software files relied upon by Dr. Williams in support of his infringement opinions are compatible or were ever part of a production release.

Defendants disagree. Defendants argue that they have not only proffered Dr. Williams

opinion as evidence that Globespan's ADSL Products infringe, but have also submitted the deposition testimony of numerous Globespan witnesses who admitted that the various Globespan ADSL Products do not materially differ in how they perform the claimed functions of the patents-in-suit.⁹ Specifically, Defendants rely on statements made by William Scholtz, Globespan's 30(b)(6) witness who was called to testify on the topic of "software code produced by Globespan in this litigation, including its correlation to particular [a]ccused [p]roducts and modifications to the software code." (Defs.' Reply at 25). Defendants note that Scholtz himself was not able to correlate the directories of code to Globespan products. (Scholtz Dep. of Oct. 12, 2004 at 133:17-133:19). Based on the testimony given by Globespan witnesses, Defendants argue that "there was and is no need to correlate a specific code release to a particular product because for all relevant functions there is no difference between products." (Defs.' Reply at 24).

The Court concludes that Globespan fails to create a genuine issue of material fact by adducing the Wu declaration. Globespan is essentially arguing that Defendants must prove infringement with greater specificity by linking specific software files with specific products. The Court rejects this argument. Defendants' expert bases his infringement opinions on software source code that was obtained from a Globespan workstation. (Williams Decl. ¶ 53). Williams analyzed one main directory, as well other directories that were contained within it. (*Id.*). Defendants proffered evidence that the code within this particular directory is used in conjunction with all of the Globespan ADSL Products that Defendants assert infringe the claims of the patent. (Scholtz Dep.

⁹ (*See* Defs.' Reply at 24 n.17 (citing Scholtz Dep. of Oct. 12, 2004 at 198:21-199:20, 200:5-8, 185:33-186:6 (bit allocation), 249:9-12 (tone ordering), 250:1-23 (Reed Solomon coding); Wang Dep. of Oct. 27, 2004 at 28:20-29:13 (bit swapping); Wang Dep. of Oct. 26, 2004 at 144:13-145:3, 39:18-40:3, 43:1-8 (trellis coding)).

of Oct. 12, 2004 at 145:20-24, 152:7-9). Globespan fails to convince the Court that Defendants must provide more particularized evidence concerning the source code in light of the blatant admission by Globespan's own Director of ADSL Firmware that the files upon which Dr. Williams relies are used in all of the accused products. Accordingly, Globespan's argument is rejected.

b. “*apparatus arranged for differently encoding a plurality of data signals*”

Globespan argues that the accused products fail to meet the claim limitation “apparatus arranged for differently encoding a plurality of data signals” as required by claims 1–14 and 22. The Court construed this term as “the apparatus implementing the encoding is configured in such a way that it encodes more than one data signal by using at least two types of encoding that are not the same.” (*Markman* Op. at 49). Globespan interprets the Court's construction as requiring “dual latency” functionality. Globespan argues that Defendants have not proven that the accused products perform the “dual latency” function.

As a preliminary matter, the Court notes that Globespan makes the incorrect assumption that this Court's construction of the claim term at issue is equivalent to “dual latency.” Based on the record evidence, “dual latency” means the process of using fast path and interleaved path at the same time. (Wang Dep. of Oct. 26, 2004 at 76:7-23). “Single latency,” on the other hand, refers to the use of either fast path or interleaving path only. (*Id.* at 80:6-7). Although the Court's construction is sufficiently broad to encompass “dual latency,” it does not require “dual latency” because nothing in the claim construction specifically requires that the two types of encoding, e.g., fast path and interleaving path, be used simultaneously.¹⁰ In any event, the record reflects that certain Globespan

¹⁰ The parties agree that such a function falls within the claim construction. (Defs.' Reply at 19 n.10).

chipsets are configured to perform dual latency. (Wu Decl. ¶ 5; Wang Decl. ¶ 5; Chase Dep. of May 6, 2005 at 78:3-11). Thus, Globespan's argument that the accused products do not meet this limitation because Defendants fail to prove they use "dual latency" is incorrect.

In order to demonstrate that the accused products read on this limitation, Defendants need only provide evidence that the products are configured to encode more than one data signal by using at least two different types of encoding. Defendants have submitted sufficient evidence to this effect. Defendants submit that Globespan's chipsets may be configured to transmit data signals with different levels of interleaving, and therefore different delays, by using a fast path or interleaved path mode of operation.¹¹

Globespan further argues that summary judgment as to this claim limitation is not proper because there are disputed issues of fact concerning the infringement opinion of Dr. Williams. In particular, Globespan points to alleged errors concerning framing structures and certain files mentioned in his declaration. Globespan disputes Dr. Williams' assertion that certain framing structures use the dual latency feature. As aforementioned, this is not material since dual latency is not required to infringe the claim. Globespan also asserts that Dr. Williams incorrectly stated that files "Co.s" and Cp.s" have firmware source code. Globespan, however, fails to explain how this is a material fact. Thus, the Court concludes that Globespan fails to create a genuine issue of material fact by pointing to alleged errors in Dr. Williams' report.

Consequently, the Court grants summary judgment that the accused products meet the

¹¹ (See Stair Dep. of Dec. 7, 2004 at 41:1-15, 43:19-44:4, 50:5-51:19; Chase Dep. of May 6, 2005 at 62:4-63:7, 64:3-11, 79:18-25; Bradmaier-Monahan Dep. of July 7, 2005 at 31:15-32:1, 35:9-23, 67:24-69:15, 86:1-89:25; Scholtz Dep. of Oct. 13, 2004 at 33:13-34:12; Scholtz Dep. of Oct. 12, 2004 at 272:8-14; Rahman Dep. of Mar. 9, 2005 at 187:11-16).

“apparatus arranged for differently encoding a plurality of data signals” claim limitation in claims 1–14 and 22 of the ‘604 Patent.

c. Claims 15–22: Method Claims

Globespan argues that Defendants fails to prove infringement of the method claims in the ‘604 Patent. In particular, Globespan asserts that Defendants do not demonstrate that each step of the claimed method is performed. Defendants argue that they have submitted adequate proof that the method claims are infringed.

It is well-established that “a patent for a method or process is not infringed unless all steps or stages of the claimed process are utilized.” *NTP, Inc. v. Research In Motion, Ltd.*, 418 F.3d 1282, 1318 (Fed. Cir. 2005) (quoting *Roberts Dairy Co. v. United States*, 530 F.2d 1342, 1354 (Ct. Cl. 1976)). In their moving brief, however, Defendants fail to address each and every limitation that exist in claims 15–21. In one paragraph, Defendants attempt to prove infringement of six method claims, consisting of approximately eighteen claim limitations. (*See* Defs.’ Br. at 46-47). Defendants provide a conclusory statement that “Globespan’s ADSL Products practice each and every element of the methods claimed by claims 15 through 21 of the ‘604 Patent.” (Defs.’ Br. at 46). This is not enough to warrant summary judgment. As discussed above, the Court will not address any claim limitations raised in a conclusory manner in the brief, without any supporting argument. Because Defendants fail to provide to the Court adequate explanation as to how each step of the claimed methods are performed, summary judgment of infringement as to claims 15–21 must be denied.

d. Claims 11 and 12: Means-Plus-Function Limitations

The next issue raised by Globespan concerns the means-plus-function limitations found in

claims 11 and 12 of the patent. Claims 11 and 12 read:

11. A data transmission system as claimed in claim 8 wherein the modulator comprises a table for providing indices of the carriers in order of the number of bits in each transmission symbol period allocated to the carriers, *means for reading the respective number of bits for each carrier from the second store in order of the different delays through the coding and interleaving apparatus*, and sorting means for supplying the respective bits for modulation onto the respective carriers.

12. A data transmission system as claimed in claim 8 wherein the modulator comprises a trellis coder, apparatus for providing an Inverse Fast Fourier Transform (IFFT), a table for providing indices of the carriers in order of the number of bits in each transmission symbol period allocated to the carriers, *means for reading the respective number of bits for each carrier from the second store to the trellis coder in order of the different delays through the coding and interleaving apparatus*, and a sorter for supplying signal amplitudes supplied by the trellis coder to storage locations of the IFFT apparatus identified by the respective carrier indices.

‘604 Patent, claims 11&12 (emphases added). During claim construction, the parties requested that the Court construe the “means for reading the respective number of bits for each carrier from the second store in order of the different delays through the coding and interleaving apparatus” limitation in claim 11. The Court concluded that the claimed function was “reading the respective number of bits for each carrier from the second store in order of the different delays through the coding and interleaving apparatus” and the corresponding structures were the microprocessor control unit 68 and tables 38 and 40. (*Markman Op.* at 55-57).

Globespan argues that the accused products do not satisfy this claim limitation because the products do not “contain a carrier index table that stores the index of the subchannels in order of the numbers of bits allocated to each subchannel.” (Pl.’s Opp’n at 38; Wang Decl. ¶ 17). Globespan asserts that the products contain a bit allocation table which stores in frequency order the number

of bits allocated for each subchannel. (Wang Decl. ¶ 15-18). Because the products do not use an index table, Globespan contends that the limitation cannot read on the accused products. In response, Defendants argue that Globespan improperly bases its argument on an unduly narrow construction of the means-plus-function limitation, and that the accused products do possess the structures necessary to satisfy this limitation.

Literal infringement of a means-plus-function limitation requires “that the relevant structure in the accused device perform the identical function recited in the claim and be identical or equivalent to the corresponding structure in the specification.” *Frank’s Casing Crew*, 389 F.3d at 1378. “Because structural equivalents under § 112, ¶ 6 are included within literal infringement of means-plus-function claims, the court must compare the accused structure with the disclosed structure, and must find equivalent structure as well as identity of claimed function for the structure.” *Cross Med. Prods.*, 424 F.3d at 1315 (quotation omitted). For the structure in the written description to be equivalent to the structure in the accused device, there must be insubstantial differences between the two. *JVW Enters., Inc. v. Interact Accessories, Inc.*, 424 F.3d 1324, 1333 (Fed. Cir. 2005). “[T]he structure in the accused device must perform the claimed function in substantially the same way to achieve substantially the same result as the structure in the written description.” *Id.*

Seemingly, Defendants argue that four structures in the accused products are “identical” to the three corresponding structures identified by the patent. (Defs.’ Reply at 21). Clearly, that cannot possibly be the case as there is no one-to-one correlation between the accused structures and the claimed structures. In the alternative, Defendants argue that the structure in the accused products is equivalent to the claimed structure. Defendants, however, fail to inform the Court how the structures are deemed equivalent. Defendant merely assert that there are no substantial differences.

(*Id.* at 21 n.13-14). This is not enough to conclude that the accused products include equivalent structures. Rather, Defendants must make a particularized showing that the accused structure performs the “claimed function in substantially the same way to achieve substantially the same result as the structure in the written description.” *JVW Enters.*, 424 F.3d at 1333. Thus, the Court finds a genuine issue of material fact as to whether the means-plus-function limitations of claims 11 and 12 read on the accused products. Accordingly, summary judgment as to these claim limitations is denied.

e. Claims 19–21: “receiving data signals to be transmitted from a plurality of input data channels” and “modulating different numbers of bits of the encoded data signals onto different carriers based on the susceptibility of the different channels to noise”

Lastly, Globespan argues that summary judgment of infringement cannot be granted because the accused products do not perform the claimed methods in claims 19–21. These claims require: “receiving data signals to be transmitted from a plurality of input data channels” and “modulating different numbers of bits of the encoded data signals onto different carriers based on the susceptibility of the different channels to noise.” ‘604 Patent, claims 19–21. The Court construed “the different channels” to mean the “input data channels.” (*Markman Op.* at 68-71). Globespan argues that Defendants have not submitted any evidence that the accused products perform these steps. Globespan proffers evidence that the accused products modulate bits based on the noise of the carriers, not based on the susceptibility of the input data channels as the claim requires. (Wang Decl. ¶ 21). Defendants fail to rebut this argument with sufficient evidence. Defendants simply state, in conclusory terms and in their reply brief, that this limitation is satisfied. As such, the Court concludes that Globespan adduced sufficient evidence to establish a genuine issue of material fact. Therefore, summary judgment that this limitation reads on the accused products is denied.

f. The Remaining Claim Limitations of the ‘604 Patent

As for the remaining claims of the ‘604 Patent, Defendants have not provided the Court with sufficient arguments in their briefs to persuade the Court that each and every limitation of the asserted claims are found in the accused products. As such, the Court will not address these limitations. Consequently, summary judgment of infringement as to those claim limitations is denied.¹²

g. Defendants’ Direct/Indirect Infringement Arguments

Because Defendants have not proven at summary judgment that the accused products meet each and every limitation of the asserted claims, summary judgment of both direct and indirect infringement is denied.

h. ADSL2 Products

Globespan moves for summary judgment that Globespan’s ADSL2 Products do not infringe any claim of the ‘604 Patent. In support of this assertion, Globespan relies on an admission by Defendants’ expert, Dr. Williams. In response, Defendants argue that Williams’ naked opinion is not admissible evidence of noninfringement. Further, Defendants assert that Dr. Williams has not even analyzed whether ADSL2 Products infringe the ‘604 Patent. (*See Williams Opp’n Decl.* ¶ 448). Defendants also cite the deposition testimony of Shareq Rahman, senior manager for the development of ADSL2 Products, who was involved in the development and testing of ADSL2 products with dual latency. (Defs.’ Opp’n at 38 n.9).

As explained above, “[s]ince the ultimate burden of proving infringement rests with the

¹² For this same reason, the Court denies Defendants’ request for partial summary judgment as to claims 1–11, 13, 14 and 22. (*See Defs.’ Reply* at 23-24).

patentee, an accused infringer seeking summary judgment of noninfringement may meet its initial responsibility either by providing evidence that would preclude a finding of infringement, or by showing that the evidence on file fails to establish a material issue of fact essential to the patentee's case." *Novartis Corp.*, 271 F.3d at 1046 (citation omitted). "Once the moving party has satisfied its initial burden, the opposing party must establish a genuine issue of material fact and cannot rest on mere allegations, but must present actual evidence. Issues of fact are genuine only if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." *Crown Operations*, 289 F.3d at 1375 (citing *Anderson*, 477 U.S. at 248).

Rather than provide specific evidence concerning specific claim limitations and why the ADSL2 Products fail to satisfy them, Globespan relies on the generalized testimony of Dr. Williams that indicates the ADSL2 Products do not infringe. In response, Defendants point to the deposition testimony of Shareq Rahman who stated that with the proper API code, the DSP code of certain platforms of Globespan's products can perform dual latency in ADSL2. (Rahman Dep. of Mar. 9, 2005 at 34:17-23). Drawing all inferences in favor of Defendants as the non-moving party on this issue, the Court concludes that Defendants demonstrate there is a genuine issue of material fact as to whether Globespan's ADSL2 Products infringe the '604 Patent. Consequently, Globespan's motion for summary judgment of noninfringement of the '604 Patent by Globespan's ADSL2 Products is denied.

i. Conclusion

Based on the reasons discussed above, the Court: 1) grants Defendants' motion for summary judgment that the accused products meet the "apparatus arranged for differently encoding a plurality of data signals" claim limitation in claims 1-14 and 22 of the '604 Patent; 2) denies Defendants'

motion for summary judgment that the accused products infringe claims 15–21; 3) denies Defendants’ motion for summary judgment that the means-plus-function limitations of claims 11 and 12 read on the accused products; 4) denies Defendants’ motion for summary judgment that the limitations “receiving data signals to be transmitted from a plurality of input data channels” and “modulating different numbers of bits of the encoded data signals onto different carriers based on the susceptibility of the different channels to noise” in claims 19–21 read on the accused products; 5) denies Defendants’ motion for summary judgment that the remaining claim limitations in the ‘604 Patent read on the accused products; 6) denies Defendants’ motion for summary judgment of direct and indirect infringement of claims 1–22 of the ‘604 Patent; and 7) denies Globespan’s motion for summary judgment that Globespan’s ADSL2 Products do not infringe the ‘604 Patent.

B. INVALIDITY

1. Claim 1 of the ‘447 Patent: Anticipation: § 102(b) “Printed Publication” Bar

Section 102 of the Patent Act provides that a person is entitled to a patent unless the invention was “described in a printed publication in this or a foreign country . . . more than one year prior to the date of the application for patent in the United States.” 35 U.S.C. § 102(b). A finding of invalidity based on anticipation under 35 U.S.C. § 102 requires a determination that “each and every limitation is found either expressly or inherently in a single prior art reference.” *PIN/NIP, Inc. v. Platte Chem. Co.*, 304 F.3d 1235, 1243 (Fed. Cir. 2002) (quoting *Celeritas Techs., Ltd. v. Rockwell Int’l Corp.*, 150 F.3d 1354, 1360 (Fed. Cir. 1998)). Because a patent that was issued by the PTO enjoys a presumption of validity, the evidence supporting such a finding must be clear and convincing. *Id.* Whether a patent is anticipated by a prior art reference is a question of fact.

Schumer, 308 F.3d at 1315.

Globespan contends that claim 1 of the ‘447 Patent is invalid because it is anticipated by a doctoral thesis written by Dr. Jerome Tu as a graduate student at Stanford University. In June 1991, Dr. Tu submitted his thesis entitled “Theory, Design and Application of Multi-Channel Modulation for Digital Communications” (“Tu thesis”) to the Stanford University Department of Engineering. (Statement of Undisputed Material Facts in Supp. of Pl.’s Mot. for Partial Summ. J. (“Pl.’s 56.1 Stmt.”) ¶¶ 56-57). John M. Cioffi, one of the named inventors of the ‘447 Patent, was the principal advisor who ultimately certified the Tu thesis. (*Id.* ¶¶ 55, 60-61).

As a preliminary matter, the Court will first address Defendants’ argument that the Tu thesis does not qualify as a “printed publication.” The Court must determine whether a particular reference qualifies as a printed publication on a case-by case basis. *In re Cronyn*, 890 F.2d 1158, 1161 (Fed. Cir. 1989). The relevant inquiry is whether a reference was “sufficiently accessible to the public interested in the art” before the critical date. *Id.* The Federal Circuit stated that “dissemination and public accessibility are the keys to the legal determination whether a prior art reference was ‘published.’” *Id.* (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1568 (Fed. Cir. 1988)).

The critical date is May 3, 1992 – one year prior to the filing date of the ‘447 Patent application. Globespan submitted evidence that the thesis was available in the Stanford University Engineering Library as of February 26, 1992. (English Decl., Ex. EE). Globespan submitted a copy of the thesis with a stamp reflecting this date. (*Id.*). Defendants argue that such evidence is insufficient to establish that the thesis was available to the public. Relying on the declaration of the Karen Clay, Head Librarian & Bibliographer for the Stanford Engineering Resource Group,

Defendants assert that the stamp only indicates that the thesis was processed by the Engineering Library on February 26, 1992, and not necessarily made available to the public on that date. (Clay Decl. ¶ 3). Globespan counters by noting that Clay further admits that new dissertations and theses are stamped by the Engineering Library *after* they are catalogued by the Stanford University Libraries Technical Services Department. (Pl.’s Reply at 26 (emphasis in original); Clay Decl. ¶ 3). Drawing all reasonable inferences in favor of the nonmoving party, the Court finds a genuine issue of material fact as to whether the thesis was actually made available to the public through the Stanford University library system as of the critical date.

This does not preclude summary judgment, however, based on additional evidence in the record. Globespan submitted evidence establishing that the Tu thesis was available to the public through a separate database service. Prior to the critical date, the Tu thesis was available on the Dissertation Abstracts International Database – a database maintained by UMI Company and ProQuest Information and Learning Company (“ProQuest”). Globespan submitted the declaration of Delphine Lewis, ProQuest’s product manager, who stated that the record accompanying the Tu thesis indicates that it was available to the public (database subscribers) as of March 1992. (Lewis Decl. ¶ 10 & Ex. 1). The evidence also demonstrates that the thesis was searchable by title, author, adviser, or subject matter – in this case, “Engineering, Electronics and Electrical.” (*Id.* ¶¶ 4, 10 & Ex. 1). Defendants fail to proffer rebuttal evidence to create a genuine issue of material fact as to this issue. Consequently, the Court concludes that the Tu thesis qualifies as a “printed publication” for purposes of the “printed publication” bar under 35 U.S.C. § 102(b) because it was available to the interested public through the Dissertation Abstracts International Database before the critical date.

Turning to the anticipation arguments, Globespan contends that claim 1 of the ‘447 Patent is anticipated by the Tu thesis. Claim 1 claims a method comprising four steps (a-d). Step (a) involves:

(a) sorting the subcarrier-indexed estimates of the transmission quality, scaled by the desired subcarrier bit-error-rates, into an invertible ordering for assessment of the relative data-carrying capabilities of the subcarriers at initialization and/or during data transmission.¹³

Globespan argues that the Tu thesis discloses all of the claim limitations in this step. First, Globespan asserts that the thesis describes the use of SNRs as subcarrier-indexed estimates of transmission quality and employs an Energy Loading Algorithm which discloses the “sorting” limitation. (Tu Thesis at 64). Based on this algorithm, the SNRs are arranged, or sorted, in descending order. (Tu Thesis at 64; Tu Dep. of Oct. 5, 2004 at 72:23-73:8, Chow Dep. of Aug. 18, 2004 at 87:25-88:3). Globespan contends that such ordering may be reversed – thereby meeting the “invertible ordering” claim limitation. (Pl.’s Br. at 46 n.33 (citing Williams 5/23/03 Exp. Rep. at 77; Tu Thesis at 64)). Additionally, Globespan asserts that the Tu thesis discloses scaling the SNRs by the bit-error-rates. (Tu Thesis at 50-52, 63 & 147). This process, according to Globespan, occurs during initialization as required by the claim. (Pl.’s Br. at 48 (citing Williams 6/20/05 Exp. Rep. ¶ 109)).

In response, Defendants advance two arguments. First, Defendants argue that the Tu thesis does not disclose scaling the estimates by the desired subcarrier bit-error-rates because the thesis fails to account for the target margin. Second, Defendants assert that the thesis cannot anticipate

¹³ During claim construction, the Court ruled that the claim requires segregating the estimates into groups based on specified criteria, and does not require reordering. (*Markman Op.* at 21).

because it fails to disclose sorting and scaling the estimates during transmission, in addition to initialization. Defendants base this argument on a proposed claim construction for step (a) – specifically, that the sorting and scaling steps must be capable of being performed during both initialization and transmission.

The Court rejects both of Defendants’ arguments. First, the claim requires the subcarrier-indexed estimates of transmission quality to be scaled by the bit-error-rates, not by a target margin. Defendants do not dispute Globespan’s evidence that the estimates are scaled by bit-error-rates. This is clearly what the claim requires. Claim 1 is silent as to “target margin.” As such, “target margin” is not a required claim limitation that must be found in the prior art reference to anticipate. Second, Defendants’ assertion that the claim requires the sorting and scaling steps to occur during initialization as well as transmission must fail. Based on the claim’s plain language, the claim requires the step to occur during initialization, or during transmission or both. It is well-settled that “[a] claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.” *Merck & Co., Inc. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005). Accepting Defendants’ flawed construction would essentially excise the word “or” from the claim. Moreover, the Federal Circuit has “consistently interpreted the word ‘or’ to mean that the items in the sequence are alternatives to each other.” *Schumer*, 308 F.3d at 1311. Thus, Defendants’ proposed claim construction and accompanying argument are rejected. The Court concludes that the Tu thesis discloses step (a) of claim 1.

Next, step (b) of claim 1 provides:

(b) calculating bit and energy allocation tables for said multicarrier data transmission system based on the sorted subcarrier-indexed estimates for either improving aggregate transmitted data rate at fixed performance margin with said power or power-spectral-density

constraint or improving performance margin at a fixed data rate with said power or power-spectral-density constraint.

‘447 Patent, claim 1. Globespan argues that the Tu thesis likewise discloses every claim limitation found in this step. Globespan submits evidence that the Tu thesis describes calculating energy allocation tables based on the subcarrier-indexed estimates. (Tu Thesis at 64, Cioffi Dep. of May 10, 2005 at 53:9-18). Globespan also asserts that the thesis discloses calculating bit allocation based on the subcarrier-indexed estimates, or SNRs. (Tu Dep. of Oct. 5, 2004 at 41:7-23, 46:7-47:18). In doing so, Globespan focuses on the “Bit Allocation Algorithm” which Globespan asserts bases its calculation on energy allocations derived from the SNRs. (Cioffi Dep. of May 10, 2005 at 53:9-55:5). Thus, Globespan contends that the Tu thesis discloses calculation of bit allocations that are based on various SNRs for each subchannel, as required by the claim. (Tu Dep. of Oct. 5, 2004 at 41:7-23). Globespan further submits that the thesis discloses the limitation of improving data rate at a fixed performance margin. (Tu Thesis at 63; Cioffi Dep. of May 10, 2005 at 57:11-18; Tu Dep. of Oct. 5, 2004 at 40:18-41:17, 128:24-129:3; Williams 6/20/05 Exp. Rep. ¶ 108). Moreover, according to Globespan, the thesis discloses that the calculations are subject to a fixed power constraint, or an absolute limit in transmitter power. (Tu Thesis at 64; Cioffi Dep. of May 10, 2005 at 57:11-18).

Defendants argue that Globespan’s argument fails because the Tu thesis does not disclose the first limitation of step (b) – that the calculation of the bit allocation table is based on the subcarrier-indexed estimates. Defendants assert that Globespan bases its argument on the incorrect assumption that “the calculation of energy used in the bit allocation equation 3.16 must be calculated using the energy allocation algorithm recited in section 4.2 of the Tu thesis.” (Defs.’ Opp’n at 46). Defendants contend that this assumption is incorrect because the Tu thesis does not actually specify

how energy is assigned in the bit allocation algorithm. Defendants rely on Dr. Tu's statement that the assigned energy may be flat energy – i.e., equal energy among the subchannels. (Tu Dep. of Oct. 5, 2004 at 46:7-47:6). As such, Defendants contend that the Tu thesis fails to disclose the claim limitation that the bit and energy allocation tables are based on the sorted subcarrier-indexed estimates.

The Court concludes that Defendants fail to create a genuine issue of material fact as to this issue. The Court first notes that Defendants do not contest that the thesis discloses the calculation of energy allocation based on SNRs. Next, in support of their argument that the thesis does not specify how energy is assigned in the bit allocation algorithm, Defendants rely on Dr. Tu's statement that the assigned energy may be constant or flat. (Tu Dep. of Oct. 5, 2004 at 46:7-47:6). However, Dr. Tu continues in his testimony by stating that the energy may also be assigned by the energy allocation that is derived from the optimum energy allocation (described in Section 4.2) – energy allocation that is undisputedly based on subcarrier-indexed estimates of transmission quality. (*Id.* at 47:2-48:17). Thus, Defendants' argument fails to create a genuine issue of material fact as to whether the thesis meets the first limitation of step (b). Having determined that the thesis discloses the calculation of bit allocation based on SNRs, the Court concludes that the Tu reference contains all limitations contained in step (b).

Turning to the third step in claim 1, step (c) provides:

(c) communicating said bit and energy allocation tables between the transmitters and the receivers of said multicarrier transmission system.

'447 Patent, claim 1. Globespan submits that the Tu thesis discloses this limitation. Relying on Dr. Cioffi's testimony, Globespan asserts that the thesis discloses that a "block-level synchronization"

occurs after the calculation of bit and energy allocations. (Tu Thesis at 190-91; Cioffi Dep. of May 10, 2005 at 56:20-57:10). Dr. Williams admitted that the thesis also discloses that bit allocations are communicated between the transmitter and receiver. (Williams Dep. of July 20, 2005 at 76:5-8). Globespan argues that the communication of bit allocations between the transmitter and receiver necessarily means that energy allocations are also being communicated because the thesis describes a method in which energy allocations are calculated before bit allocations. (Tu Thesis at 52). According to Globespan, the thesis provides that “these bit and energy allocations must be known to both the transmitter and the receiver.” (Pl.’s Br. at 51). Further, Globespan notes that the bit and energy allocations may be communicated manually “*from the receiver to transmitter for bit and energy optimization.*” (*Id.* at 51-52 (quoting Tu Thesis at 190) (emphases in original)). Thus, Globespan maintains that the reference discloses step (c).

Defendants counter by noting that the thesis expressly states: “Because a reverse channel is not available, feedback from the receiver to the transmitter for bit and energy optimization is performed manually *or not at all.*” (Tu Thesis at 190) (emphasis added). Defendants also cite the testimony of Dr. Tu in which he explained that the statement indicates that feedback is performed “off-line” as opposed to “in the processor by the receiver or by the transmitter in real-time.” (Tu Dep. of Oct. 5, 2004 at 64:13-19). Specifically, without a reverse channel, one would have to stop transmission, manually run the allocation algorithms, and restart transmission. (Defs.’ Opp’n at 48; Tu Dep. of Oct. 5, 2004 at 64:13-65:13). As such, Defendants argue that the thesis fails to disclose step (c) because there is no disclosure that bit and energy allocation tables are communicated between transmitters and receivers.

Based on the record before the Court, the Court finds that a genuine issue of material fact

exists as to whether this limitation of claim 1 is disclosed in the Tu thesis. Defendants adduced sufficient evidence to suggest that this step is not disclosed in the Tu thesis. Whether this prior art reference includes this limitation, either expressly or inherently, is a determination that must be made by the fact-finder at trial. Consequently, Globespan's motion for summary judgment that the Tu thesis discloses step (c) of claim 1 is denied.¹⁴

Regarding the last step of the claim, Globespan asserts that step (d) is also included in the Tu thesis. Step (d) provides:

implementing said bit and energy allocation tables in coordination between the transmitters and the receivers during initialization of said multicarrier transmission system and/or during simultaneous transmission of said digital data by said multicarrier transmission system.

'447 Patent, claim 1. Globespan argues that Tu describes a prototype system in which the transmitter and receiver use the results of the bit and energy algorithms "to effectuate transmission so that the receiver can understand what the transmitter intended to send." (Pl.'s Br. at 52 (citing Tu thesis at 190-97)). The parties do not dispute that the Tu thesis discloses implementation of bit and energy allocation tables at the transmitter and receiver during initialization. (Pl.'s 56.1 Stmt. & Defs.' Resp. ¶ 97). Defendants, however, advance the same argument that the thesis does not anticipate because it does not disclose implementing the tables during both initialization and transmission as required by the "and/or" language of the claim. For the same reason discussed above, the Court rejects this

¹⁴ Because the Court finds that a genuine issue of material fact exists as to whether the Tu thesis discloses step (c) thereby precluding summary judgment, the Court need not address Defendants' alternative argument in opposition to Globespan's motion that the Tu thesis cannot anticipate because it is not enabling.

argument.¹⁵

Consequently, the Court concludes that a genuine issue of material fact exists as to whether the Tu thesis discloses step (c) of claim 1 of the ‘447 Patent. The Court grants summary judgment that the Tu thesis discloses steps (a), (b), and (d) of claim 1 of the ‘447 Patent. Because Globespan fails to prove by clear and convincing evidence that step (c) of claim 1 is disclosed in the prior art reference, Globespan’s motion for summary judgment that claim 1 of the ‘447 Patent is anticipated by the Tu thesis must be denied at this time. *See PIN/NIP*, 304 F.3d at 1243 (noting that each and every limitation must be found in a single prior art reference for a finding that a claim is invalidity based on anticipation).

2. Claims 19–21 of the ‘604 Patent: Written Description Under § 112

Pursuant to paragraph one of 35 U.S.C. § 112, the specification of a patent must contain, “a written description of the invention . . . in such full, clear, concise, and exact terms as to enable any person skilled in the art . . . to make and use the same.” 35 U.S.C. § 112, ¶ 1. The purpose behind the written description requirement is “to prevent an applicant from later asserting that he invented that which he did not.” *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1330 (Fed. Cir. 2003) (citing *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1561 (Fed. Cir. 1991)).

¹⁵ Defendants appear to take issue with Globespan’s reliance on the “prototype” described by Dr. Tu in his thesis. (Defs.’ Opp’n at 50 n.13). Defendants assert that Dr. Tu offered contradictory testimony acknowledging that, to his knowledge, the bit allocation algorithm was never physically implemented in any actual product. Whether the algorithm was implemented on a physical product is not material since the relevant inquiry is whether the limitation was described in the prior art reference. 35 U.S.C. § 102(b) (barring patentability if the invention was described in a printed publication more than one year prior to the application filing date). In light of the undisputed evidence that the thesis “discloses the implementation of the bit and energy allocation tables at the transmitter and receiver during initialization,” (Pl.’s 56.1 Stmt. & Defs.’ Resp. ¶ 95, 97), Defendants fail to create a genuine issue of material fact by pointing to Dr. Tu’s deposition testimony.

To meet the written description requirement, which has been characterized as “an essential part of the *quid pro quo* of the patent bargain,” *LizardTech, Inc. v. Earth Resource Mapping, Inc.*, 424 F.3d 1336, 1344 (Fed. Cir. 2005), “the disclosure must convey with reasonable clarity to those skilled in the art that the inventor was in possession of the invention.” *Crown Operations*, 289 F.3d at 1376. The patentee need not include information already known and available to the persons of ordinary skill in the art, however it “must be in sufficient detail to satisfy the statutory requirements, employing ‘words, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention.’” *Space Systems/Loral, Inc. v. Lockheed Martin Corp.*, 405 F.3d 985, 987 (Fed. Cir. 2005) (citing *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997)). This determination is a question of fact. *PIN/NIP, Inc.*, 304 F.3d at 1243.

Globespan moves for summary judgment that claims 19-21 of the ‘604 Patent are invalid based on lack of written description. Globespan first notes that these claims did not appear in the original patent application that was filed on August 17, 1993, but were presented to the PTO on July 5, 1996. (English Decl., Ex. C, at GSV00092065-66, GSV00092108-09, GSV00092118, GSV00092123-24). Claims 19–21, which are method claims, include the steps of “receiving data signals to be transmitted from a plurality of input data channels” and “modulating different numbers of bits of the encoded data signals onto different carriers based on the susceptibility of the different channels to noise.” ‘604 Patent, claims 19-21. During claim construction, the Court concluded that term “the different channels” refers to the term “the input data channels” which appears in the “receiving” step claim limitation. (*Markman* Op. at 68-71). The Court was not asked to construe the term “input data channels” itself.

Globespan argues that the claims require “that data be placed on different carriers for

transmittal to the receiver based on the susceptibility of the input data channels entering the transmitter to noise.” (Pl.’s Br. at 57-58). Globespan argues that the specification fails to adequately describe “the susceptibility of the input data channels *coming into the transmitter.*” (Pl.’s Br. at 58) (emphasis in original). Instead, Globespan contends that the specification only describes the susceptibility of the carriers that exist between the transmitter and receiver to noise. Without describing the susceptibility of the input data channels themselves (i.e. channels which Globespan describes as physically entering the transmitter), the written description requirement cannot be satisfied.

Defendants argue that Globespan improperly construes “input data channels” as some form of physical structure. Defendants purportedly rely on the Court’s *Markman* analysis and the patent’s specification to argue that “input data channels” should be construed as “the type of data incoming to the transmitter as defined by its source.” (Defs.’ Opp’n at 57-58). According to Dr. Williams, a person or ordinary skill in the art would understand that “input data channel” includes different types of input data, not a physical conductor or carrier that carries data to the transmitter. (*Id.* ¶ 449-50). Dr. Williams opines that at the time of the ‘604 invention it was well known among those of ordinary skill in the art that different types of data had different susceptibilities to errors. (Williams Opp’n Decl. ¶ 449). Therefore, Defendants contend that the patent provides an adequate description of the structures that perform the claimed methods. (Defs.’ Opp’n at 58 (citing ‘604 Patent, col. 6, ll. 9-37 & Figs. 1, 2)).

In response to these arguments, Globespan argues that “input data channels” do not refer to a type of data. Globespan states that the plain language of the claim supports this argument since the claim requires “receiving data *signals* to be transmitted from a plurality of input data *channels.*”

‘604 Patent, claims 19 & 21 (emphases added). Globespan argues that the claim itself plainly differentiates between signals and channels.

This issue appears to present, in part, a belated request for claim construction of the term “input data channels.” Based on the intrinsic evidence, the Court concludes that the term “input data channels” mean the “source of the input data signals.” Globespan correctly notes that the plain language of the claims differentiates between “data signals” and “data channels.” Thus, it does not appear that the patentee intended to use the terms “data signals,” which may include “digital video, ISDN, control, and POTS signals,” ‘604 Patent, col. 5, ll. 7-9, and “input data channels” interchangeably. The written description further supports the conclusion that the input data channels are not the actual data signals that become encoded and transmitted, but rather are the source from where the data signals originate. For example, the specification provides that “[s]ignals from a plurality of input data channels, for example information and control channels . . . , are supplied to inputs of the switch.” ‘604 Patent, col. 6, ll. 9-11. Additionally, the abstract states that “[t]he data channels can comprise video, data, and control channels transmitted on an ADSL [] two-wire telephone line.” ‘604 Patent, abstract. Accordingly, the term “input data channels” means the “source of the input data signals.”

Turning to Globespan’s written description argument for claims 19–21, the Court concludes that, drawing all reasonable inferences in favor of Defendants as the nonmoving party, there is a genuine issue of material fact. The Federal Circuit has stated that “the patent specification is written for a person of skill in the art, and such a person comes to the patent with the knowledge of what has come before.” *LizardTech, Inc.*, 424 F.3d at 1345. In this context, the specification need not spell out every detail of the invention. *Id.*

At this time, it is unclear whether a person of ordinary skill in the art reading the patent would understand that the patentees invented methods that operated based in part on the “susceptibility of the input data channels to noise.” Based on the evidence adduced by Defendants in the form of Dr. Williams’ statements, and the patent’s specification, it is clear that susceptibility to noise concerns data signals, not data channels. This begs the question how one of skill in the art would understand “susceptibility of the input data channel” – an issue seemingly not addressed by the parties. Thus, whether the written description requirement is satisfied for claims 19–21 is an issue that must be resolved at trial by the finder of fact. Consequently, Globespan’s motion for summary judgment of invalidity based on lack of written description for claims 19–21 of the ‘604 Patent is denied.

V. CONCLUSION

For the reasons set forth above, the parties’ motions for summary judgment are granted-in-part and denied-in-part. An appropriate form of Order accompanies this Memorandum Opinion.

Dated: November 10, 2005

s/ Garrett E. Brown, Jr.
GARRETT E. BROWN, JR., U.S.D.J.